

Appln. No. 10/687,013

Attorney Docket No. 10541-1870

I. Amendments to the Claims

1. (Currently Amended) A system for providing an end of travel feedback from a road wheel to a driver of a vehicle, the vehicle including a steer by wire system, the system comprising ;

a steering wheel configured to control the steer by wire system;

a steering shaft coupled to the steering wheel;

a first motor coupled to the steering shaft to provide road feel resistance to the driver; and

a brake coupled to a shaft of the first motor adapted to provide mechanical resistance when the road wheel is in an end of travel condition; and

a torque transfer mechanism configured to multiply a torque between the shaft of the first motor and the steering shaft.

2. (Original) The system according to claim 1, wherein the brake is a friction brake.

3. (Cancelled)

4. (Currently Amended) The system according to claim 1, further comprising a controller adapted to sense when the road wheel has reached an end of travel position and engage the brake as determined by the controller or a sensor.

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5. (Currently Amended) The system according to claim 4, wherein the controller is adapted to engage the brake based on the a road wheel angle of the road wheel determined by the sensor.

6. (Currently Amended) The system according to claim 4, wherein the controller is adapted to engage the brake based on a rate of change of the a road wheel angle of the road wheel determined based on the sensor.

7. (Original) The system according to claim 4, further comprising a second motor to control an angle of the road wheel.

8. (Currently Amended) The system according to claim 7, wherein the controller is adapted to engage the brake based on a current draw of the second motor as determined by the controller.

9. (Original) The system according to claim 1, further comprising a controller adapted to disengage the brake when the steering wheel is manipulated to rotate the wheel away from the end of travel position.

10. (Currently Amended) The system according to claim 9, wherein the controller is adapted to disengage the brake based on an angle of the steering wheel determined by an angle sensor.

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11. (Currently Amended) The system according to claim 9, wherein the controller is adapted to disengage the brake based on a rate of change of the a steering wheel angle determined based on an angle sensor.

12. (Currently Amended) The system according to claim 9, wherein the controller is adapted to disengage the brake based on a torque applied to the steering wheel determined based on a torque sensor.

13. (Currently Amended) The system according to claim 1, further comprising a controller adapted to sense when ~~the~~ an angle of the road wheel is restricted due to the road wheel pushing against an object as determined by the controller or a sensor.

14. (Currently Amended) The system according to claim 13, wherein the controller is adapted to engage the brake based on a current draw of a second motor configured to control the angle of the road wheel as determined by the controller.

15. (Currently Amended) The system according to claim 13, wherein the controller is adapted to engage the brake based on the angle of the road wheel determined by the sensor.

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16. (Currently Amended) The system according to claim 13, wherein the controller is adapted to engage the brake based on the a rate of change of the angle of the road wheel determined based on the sensor.

17. (Currently Amended) A method for providing an end of travel feedback to a driver of a vehicle, the vehicle including a steer by wire system and a road wheel, the method comprising the steps of:

controlling the steer by wire system with a steering mechanism;
sensing an angle of the road wheel is at an end of travel position; and
engaging a brake coupled to a shaft of a first motor to provide a mechanical resistance to the steering mechanism, wherein the mechanical resistance applied by the brake is multiplied by a torque transfer mechanism between the shaft and the steering mechanism.

18. (Cancelled)

19. (Original) The method according to claim 17, wherein the mechanical resistance is generated due to friction created by the brake.

20. (Original) The method according to claim 17, wherein the brake is engaged based on the angle of the road wheel.

21. (Currently Amended) The method according to claim 17, wherein the brake is engaged based on the a rate of change of the angle of the road wheel.

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22. (Original) The method according to claim 17 further comprising the step of controlling an angle of the road wheel using a second motor.

23. (Original) The method according to claim 22, wherein the brake is engaged based on a current draw of the motor.

24. (Original) The method according to claim 17, further comprising the step of disengaging the brake when the steering wheel is manipulated to rotate the wheel away from the end of travel position.

25. (Currently Amended) The method according to claim 24, wherein the brake is disengaged based on the a steering wheel angle of the ~~steering wheel~~.

26. (Currently Amended) The method according to claim 24 wherein the brake is disengaged based on a rate of change of the a steering wheel angle.

27. (Original) The method according to claim 24, wherein the brake is disengaged based on a torque applied to the steering mechanism.